Title: SURVIVAL AND SLEEPING BAG

Abstract: It is disclosed a survival bag (10) for one or more individuals, wherein the survival bag comprises a bag section (30) having a bag shape. The bag section (30) is made from a closed cellular foam material.
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SURVIVAL AND SLEEPING BAG

The present invention concerns a survival bag in the form of a sleeping device or a sleeping bag, which is particularly suitable for use in emergencies, and catastrophic situations; however, which may further be used as an ordinary sleeping bag.

Of similar devices, sleeping bags are commonly known. Sleeping bags are constructed from different types of layers, and are usually stuffed with a fill material, e.g., down etc., to insulate against cold and ensure that the uses traps the heat during use. To avoid losing heat to the ground on which the sleeping bag rests, usually a base mat is used. Today, this is commonly an inflatable resting mat, which in addition to insulate against heat loss to the ground also provides a substantially enhanced resting comfort to the user. Resting mats constructed from closed cellular foam are known, and sleeping bags exist which are constructed with a pouch having a shape and size making a resting mat of ordinary size possible to insert prior to use of the sleeping bag, and extractable after use, before the sleeping bag is folded up.

Prior art sleeping bags are constructed with different types of layers, in addition to one or more layers with fill material for insulating against cold. The simplest sleeping bags usually have an inner layer commonly adapted to make it as comfortable as possible to rest inside the sleeping bag for a user, and to transport moisture away from the inner space of the sleeping bag, and at the same time reflect the heat from the user as much as possible. Further, these sleeping bags have an outer layer constructed to withstand wear, and a fill material such as for example down or a corresponding synthetic material, which is arranged between the inner layer and the outer layer. Between the inner layer and the outer layer there is usually also arranged several channels in which the fill material is inserted.

Sleeping bags that are more complex have multiple layers, often with overlapping channels with insulating material inside.

Sleeping bags with multiple layers and insulating material have high production costs, both for materials and because of the time required to arrange these different layers and finally sew them together.

Consequently, a purpose of the present invention has been to provide a survival bag which is particularly applicable for use in emergency situations, but which may also be used as an ordinary sleeping bag, and which is simple and cheap to produce.

It has also been a purpose of the present invention that the survival bag should be robust and able to cope with rough use.

It has also been a purpose of the present invention that the survival bag should be easy to handle and simple and cheap to transport.

This is achieved with a survival bag as defined in independent claim 1. Further embodiments of the survival bag are defined in the dependent claims 2-15.
The idea behind the present survival bag is to provide a survival bag having the shape of a sleeping bag that may be used in an emergency or in a catastrophic situation, e.g. in the aftermath of an earthquake or flooding, in which situations there may be a large number of individuals in need of protection against the elements. Particularly in a first phase after such catastrophic events; when buildings that may otherwise have provided shelter have been destroyed, and in which events there have been no time to erect tents and other devices to provide exposed individuals with a refuge; a simple and cheap device which may at least give a basic protection against the elements can be the crucial element to save these people.

Survival bags produced in accordance with the present invention will be simple and cheap to produce. In addition, they are lightweight, and constructed from a robust material, and, consequently, they are easy to handle. Because the present survival bag is lightweight, and occupies little space, it can also be used as an ordinary sleeping bag. In particular, the survival bag may be interesting to individuals who like hiking outdoor, who often prefer lightweight equipment to reduce the weight to be carried.

The survival bag is constructed with a bag section having a bag shape corresponding to an ordinary sleeping bag; that is a lower part or base layer onto which a user rests, and a upper part or top layer which covers the user on the upper side wherein the base layer and the top layer forms the extended bag shape of an ordinary sleeping bag having an opening in at least one end, such that the user may enter into and get out of the survival bag. The bag section of the survival bag consists of a simple material, which is preferably a closed cellular foam material. The closed cellular foam material may for instance be extruded polyethylene (PE) which at one side, preferably the side of the bag section facing outwards, possibly may be heat laminated with a very thin layer of the same material (PE) to increase the lateral strength on the extruded PE layer. In addition to the bag section, the survival bag may be provided with attachment means to releasably attach the top layer of the bag section to the base layer of the bag section along one or more corresponding side edges, possibly also along part of one or more corresponding side edges at the lower and upper part of the bag section.

During production of the survival bag, the upper part and lower part of the bag section may be produced such that a single layer, a bag layer, is bent or folded along a center line in the longitudinal direction, such that one half constitutes the base layer, and the other half constitutes the top layer. Along the lower side edge of the bag section, which becomes the lower side edge of the base layer and top layer, respectively, when the bag layer is folded along the center line, and along all or at least along part of the side edge of the bag layer wherein the side edges of the bag layer are adjacent to each other when the bag layer is folded along the center line, is the base layer and the top layer is preferably permanently attached to each other, for example by welding, gluing, sewing etc.
Alternatively, as mentioned above, one or more repeatedly openable and closable attachment means may be provided along said side edge, and possibly along said lower side edges, which makes it possible to open and close the survival bag along the side edge and possibly the lower side edge. This will make it simpler for a user to get into and out of the survival bag. The attachment means may for example be Velcro, button devices, zip locks, or similar attachments means, which can be opened and closed repeatedly.

Alternatively, the bag section of the survival bag can be constructed such that the base layer and top layer are produced as two separate layers, which subsequently are preferably attached permanently to each other, e.g. by welding or gluing. At least along part of two corresponding side edges of the base layer and top layer, respectively. Along the lower side edges in one end of the base layer and top layer, and along the remaining side edges of the base layer and top layer, the base layer and top layer may be attached each other as explained above, i.e. either permanently by for instance welding or gluing, or using attachment means which can be opened and closed repeatedly, such as Velcro, button devices, zip lock etc. An advantage of producing the survival bag with two separate layers, which are attached to each other, is that different thickness may be used for the two layers. For instance, the base layer may be thicker than the top layer to provide enhanced resting comfort for the user.

An alternative may be to arrange the base layer and top layer with an attachment means that can be opened and closed repeatedly, e.g. Velcro, button devices, zip lock, or other suitable attachment means, along all or part of both side edges and corresponding lower side edges such that the base layer and top layer can be attached to each other and form a bag shape, and which can also be completely separated from each other. In this way, it is possible to produce and store base layers and top layers of different thickness; and subsequently, base layer and top layer may be combined as desired according to resting comfort, ambient temperature, weight, and available room during transport, etc. Specifically, when there is an immediate need for survival bags, typically during a natural disaster, it can be desirable to combine base layers and top layers in accordance with the climate and the transportation requirements of the situation at hand.

Consequently, there is provided a survival bag for one or more persons; wherein the survival bag comprises a bag section having a bag shape, and wherein the bag section is made exclusively from closed cellular foam material.

The bag section may comprise a bag layer having an lower side edge in the foot end of the survival bag; an upper side edge in the head end of the survival bag; a first side edge; a second side edge, and a center line substantially in the middle between the first side edge and the second side edge; which bag section is formed by folding or bending the bag layer along the center line such that a base layer and a top layer
is formed; and, wherein the base layer and top layer is permanently and/or repeatedly openable and closeable attached to each other along first side edge and second side edge, and/or lower side edge.

An alternative is that the first side edge and the second side edge is permanently attached to each other, and the lower side edge of the base layer and the lower side edge of the top layer are permanently fixed to each other. In another alternative, the lower side edge of the base layer and lower side edge of the top layer are permanently attached to each other, and the first side edge and second side edge are repeatedly openable and closeable attached to each other. In a further alternative, lower side edge of the base layer and lower side edge of the top layer are repeatedly openable and closeable attached to each other, and first side edge and second side edge are repeatedly openable and closeable attached to each other.

Preferably, the bag layer comprises only one layer. This one layer will then be constructed from a closed cellular foam material, and, as mentioned above, the closed cellular foam material may be extruded polyethylene (PE). The bag layer comprises an upper surface and a lower surface, and at least one of the surfaces, preferably the surface facing outwards in the finished bag section, may have a layer or coating which is heat laminated into the bag layer. Thus, the layer melts together with the bag layer, and becomes a homogeneous part of the bag layer. This layer is very thin, e.g. about 25 micron, and is made from the same PE material as the bag layer. The advantage of heat laminating a PE layer into the bag layer is that it will provide the PE material of the bag layer with increased resistance to wear.

The openable and closeable attachment means arranged at the bag section may be one or more complementary attachment means, which are adapted for repeated closing and opening. As mentioned, such attachment means may for example be one or more Velcro, button devices, or other suitable attachment means, such as a zipper, which is arranged along the side edges, which shall be repeatedly openable and closeable.

The closed cellular foam material may be produced from other types of polymer material, which form a closed cellular foam material. Closed cellular foam materials are waterproof and robust materials, and are well known materials, which have been used in ground pads for a long time, and, consequently, will not be described here in more detail. Examples of other closed cellular foam materials may for instance be EVA (ethylene vinyl acetate) or other types of polymers, closed cellular foam materials that are waterproof and sufficiently robust and insulating for use in survival bags in typical emergencies. Thus, the bag section of the survival bags according to the invention is preferably made from a standard polymeric, closed cellular foam material, which is commonly used in for instance non-inflatable ground pads.
The survival bag may alternatively comprise a resting mat having a lower side edge in the foot end of the sleeping bag, an upper side edge in the head end of the sleeping bag, a first side edge and a second side edge, and a top layer having a lower side edge in a foot end of the sleeping bag, an upper side edge in a head end of the sleeping bag, a first side edge and a second side edge; wherein the top layer and base layer are permanently and/or repeatedly openable and closeable attached to each other along corresponding first side edges, second side edges.

Alternatively, the base and top layers may be connected to each other in a permanent connection along at least part of respective first side edges of the base and top layers; in a permanent connection or a connection which can be opened and closed along respective lower side edges of the base and top layers, and in a permanent connection or a connection which can be opened and closed along at least part of respective second side edges of the base and top layers.

The base and top layers are preferably made from the same closed cellular foam material; however, if desired, they may be produced from different closed cellular foam materials if this is suitable. For example, a material may be desired for the base layer, which is particularly robust.

Both the top layer and base layer are preferably made from closed cellular foam material only. Further, the base layer comprises only one layer, and the top layer comprises only one layer. Consequently, the closed cellular foam material of the base and top layers are preferably directly connected to each other in a permanent connection.

Along the corresponding side edges of the base and top layers, which are permanently attached to each other, preferably, the base and top layers are connected to each other using one, or possibly several, of the following attachment methods: sewing, welding, gluing, or stapling, or, possibly other suitable attachment means or methods of attaching closed cellular foam materials, from which the base and top layers of the survival bag are made.

In one embodiment of the survival bag, the base and top layers are permanently connected to each other, e.g. using welding, gluing, sewing, or similar, as mentioned above; at least partly along respective first side edges of the base and top layers, at least partly along respective second side edges of the base and top layers, and along respective lower side edges of the base and top layers. Consequently, a simple survival bag is created, into and out of which a user can enter from the opening formed in the head end of the survival bag.

In another embodiment of the survival bag, the base and top layers are permanently connected to each other; e.g. by welding, gluing, sewing, or the like, as mentioned above, at least along respective lower side edges of the base and top layers, and at least along respective first side edges of the base and top layers. Consequently, a
survival bag is formed, in which the respective second side edges of the base and top layers are not permanently connected to each other. This makes it easier to get into and out of the survival bag. To be able to close the survival bag in use, the second side edge of the base layer and the second side edge of the top layer then preferably comprise one or more complementary attachment means, which attachment means are adapted for repeated closing and opening. Such attachment means may for instance be one or more Velcro, button devices, or other suitable attachment means, such as a zip lock, which is arranged along the second side edges of the base and top layers.

If the lower side edge of the base layer and the lower side edge of the top layer are not permanently connected to each other, the lower side edge of the base layer and the lower side edge of the top layer preferably comprise one or more complementary attachment means; which attachment means are adapted for repeated closing and opening. As mentioned above, such attachment means may for instance be one or more Velcro, button devices, or other suitable attachment means, such as a zip lock, which is arranged along the lower side edges of the base and top layers.

The length of the top layer may have substantially the same length as the base layer, or, possibly be longer than the length of the base layer in the longitudinal direction of the survival bag. If the top layer is longer than the base layer, a user will be able to cover the head should the weather and temperature make this desirable, and, thus the heat loss from the body is reduced.

The width of the top layer is preferably larger than the width of the base layer in a direction transverse to the longitudinal direction of the survival bag. This will make room for a user in the survival bag. The width of the survival bag may also be large enough to accommodate two or more individuals in the survival bag. Thus, the users rest in close proximity inside the survival bag; something which further reduces the heat loss of the users.

The thickness of the base layer may be selected based on the expected ambient weather and temperature conditions. Production cost and resting comfort for a user will also influence the choice of thickness of the base layer. Advantageously, the base layer has a thickness of at least 8 mm, and preferably has a thickness of at least 10 mm or more.

Similarly, the thickness of the top layer may be selected in accordance with expected weather and temperature conditions at the place of intended use. Production cost and the resting comfort of a user would also influence the choice of thickness of the top layer. Advantageously, the top layer has a thickness of at least 2 mm, and preferably, it has a thickness of at least 3 mm or more.
The above described survival bag has several advantages useful for the intended usage. Among other things, it will not get wet from water or other watery materials such as mud, snow, etc. it is easy to clean, it has very good insulating properties for keeping a user warm, it is possible to arrange the survival bag by closing it (e.g. by providing the bag section with attachment means, such as Velcro, along the upper end edges of the bag section), it floats very good and may be used in water, it has low weight, it may easily be destructed in an environmentally safe way without forming toxic compounds by simply burning it (produces water and carbon dioxide as a result).

In the following, non-limiting embodiments of the present invention shall be described, in which

Figure 1 schematically shows a base layer for a survival bag according to the invention.

Figure 2 schematically shows a top layer of a survival bag according to the invention.

Figure 3 schematically shows a survival bag with a rectangular shape, wherein the base and top layers are attached to each other in a permanent connection along the first side edge, the second side edge and the lower side edge.

Figure 4 schematically shows a survival bag tapered from the head end towards the foot end of the survival bag, and having rounded lower and upper side edges.

Figure 5 schematically shows a survival bag tapered from the head end towards the foot end of the survival bag, and having rounded lower side edge and straight upper side edge.

Figure 6 schematically shows a survival bag tapered from the head end towards the foot end of the survival bag, and having rounded upper side edge and straight lower side edge.

Figure 7 schematically shows a survival bag tapered from the head end towards the foot end of the survival bag, and having straight lower and upper side edges.

Figure 8 schematically shows a survival bag with a permanent connection along the first side edge and the lower side edge, and with complementary attachment means along respective second side edges.

Figure 9 schematically shows a survival bag with a permanent connection along the first and second side edges, and with complementary attachments means along respective second side edges.

Figure 10 schematically shows a survival bag with a permanent connection along the first side edge, and with complementary attachment means along respective second side edges and lower side edges.
Figures 11-12 show a prototype of a survival bag according to the present invention.

Figures 13-14 show a survival bag, in which the bag section comprises a single bag layer, which is folded or bent along a centerline to create the bag section.

Figures 15-16 show a prototype of the survival bag as shown in Figures 13-14, having a bag section comprising a bag layer, which is folded or bent about a centerline, and wherein the base and top layers of the bag layer are permanently attached to each other.

Initially, it should be mentioned that the different embodiments of the survival bag, as shown in the Figures, are based on the same basic idea, and they are basically the same; however, there are some minor constructional differences. The same reference numbers are used for the same features in all of the Figures.

Figure 1 shows a base layer 18 of a survival bag 10 according to the present invention. The base layer 18 is as suggested on the Figure designed substantially rectangular; having corners A and D in the upper end of the base layer 22, at which a user usually will place his head during use; and, corners B and C in the opposite end of the base layer 18, wherein a user usually keeps the legs during use. The base layer has an upper side edge 22, corresponding to the distance AD between the corners A and D; a lower side edge 21 corresponding to the distance BC between the corners B and C; a first side edge 19 corresponding to the distance AB between the corners A and B; and, a second side edge 22 corresponding to the distance CD between the corners C and D. As suggested in the Figure, the base layer has a length Hi in the longitudinal direction V, and a width Li transverse to the longitudinal direction V.

In Figure 2, a top layer 12 of a sleeping device in the form of a survival bag 10 according to the present invention is shown, for instance for use with the base layer 22 as shown in Figure 1. The top layer 12, as suggested in the Figure, is substantially rectangular in shape, in a way similar to the base layer 22, having corners A and D in the upper end of the top layer 12, in which end a user usually places the head during use; and corners B and C in the opposite end of the top layer 18, in which end a user usually puts the feet during use. The top layer has an upper side edge 16 which corresponds to the distance AD between corners A and D; a lower side edge 15 corresponding to the distance BC between corners B and C; a first side edge 13 corresponding to the distance AB between corners A and B; and, a second side edge 14 corresponding to the distance CD between corners C and D. As suggested in the Figure, the top layer 12 has a length H₂ in the longitudinal direction V, and has a width L₂ transverse to the longitudinal direction V.

The base layer 18 and the top layer 12, which are shown in Figures 1 and 2, together constitute a bag section 30 for the survival bag 10 when they are assembled; wherein the bag section 30 comprises two bag layers 36, 37, wherein the base layer
18 corresponds to the bag layer 36 and the top layer 12 corresponds to the bag layer 37.

Both the base layer 18 and the top layer 12 are made from a closed cellular foam material that is water proof, insulating, and robust, such that it is able to cope with usage without the necessity of repairs. Typically, the closed cellular foam material may be a material commonly used in resting mats commercially available today. To achieve a simple construction and keep costs down, both the base layer 18 and the top layer 12 are formed in one layer. Consequently, the base and top layers can be cut and attached to each other in a desired way, as explained below. The top layer 12 and the base layer 18 may be made from the same closed cellular foam material; however, since the base layer 18 will be more exposed to wear than the top layer, the base layer 18 and the top layer 12 may also be made from different closed cellular foam materials.

The base layer 18 has a thickness that should be at least 8 mm, preferably 10 mm or more, to provide a user with a certain resting comfort and to ensure that the base layer will have a sufficient insulating capability towards the ground, which may be cold. To increase the insulating capability of the base layer and/or resting comfort, the thickness of the base layer may of course be increased to e.g. 15 mm or 20 mm.

The top layer should have a thickness of at least 2 mm; however, preferably it has a thickness of 3 mm or more, such that the top layer has a proper insulating capability against the surroundings, and a sufficient strength to make it durable over time.

As suggested in Figures 1 and 2, preferably the width L₂ of the top layer is larger than the width L₁ of the base layer, to ensure more room for a user; however, the width L₂ of the top layer and the width L₁ of the base layer may also be substantially the same, since the base layer 18 will be flexible in the longitudinal direction V, and thus, make room for a user. When it is not in use, this will make the survival bag flat; and, consequently, it will take up less space in storage and transport; however, at the same time, it will provide less space for a user resting inside the survival bag 10. It should also be mentioned that the width of the survival bag can be selected such that it will be room for one person or several persons inside the survival bag. The advantage of a survival bag fitting two or more persons inside is that the persons may rest close to each other, an, thus, reduce the heat loss to the surroundings considerably.

In the figures, it is further suggested that the length H₁ of the base layer and the length H₂ of the top layer are about the same. However, the length H₁ of the base layer and the length H₂ of the top layer may be different. For example, the length H₂ of the top layer may be longer than the length H₁ of the base layer, such that a user may use the extra length of the top layer 12 to wrap himself/herself in, which is useful in areas of low temperature conditions. This is shown in Figures 10 and 11.
The base layer 18 and the top layer 12, as shown in Figures 1 and 2, have a rectangular shape. However, the base and top layers are not required to have such a shape. For example, the base layer 18 and the top layer 12 may be tear shaped, as suggested in Figure 4, or partly tear shaped, as shown in Figures 5 and 6, or have a square shape with tapered width from the head end towards the foot end of the bag section 30 of the survival bag. In all these embodiments of the base and top layers, the survival bag 10 has a tapered width from upper end of respective first side edges 13, 19 and second side edges 14, 20; i.e. the line AD towards lower end of respective first side edges 13, 19 and second side edges 14, 20; i.e. the line BC.

Such a tear shaped or partly tear shaped embodiment of the base layer 18 and the top layer 12 will result in a cost reduction in both production of the survival bag 10 because of less material used, and in storage and transport of a large amount of survival bags because the survival bags may be stored "head to toe"; i.e. the survival bags 10 lying adjacent to each other along the side edges will be arranged in opposite direction to each other, an thus, take up less space.

In Figure 4, a survival bag is shown wherein respective upper side edges 16, 22 of both the top and base layers, and respective lower side edges 15, 21 of the top and base layers have a curve shape, while respective first side edges 13, 19 of the top and base layers and respective second side edges 14, 20 of the top and base layers are substantially straight. This provides the bag section 30 of the survival bag with substantially a tear shape, with an opening 28 in the head end for access into the survival bag.

The shape of the survival bags 10 that is shown in Figures 5, 6, and 7, has bag sections 30 with a modified shape or partly tear shape. In Figure 5, the upper side edge 16 of the top layer 12 and the upper side edge 22 of the base layer 18 are substantially straight; while the respective lower side edges 15, 21 of the top and base layers are curve shaped, and respective first side edges 13, 19 and second side edges 14, 20 of the top and base layers are substantially straight, such as the bag section 30 of the survival bag in Figure 4.

In Figure 6, the lower side edge 15 of the top layer 12, and the lower side edge 21 of the base layer 18 are substantially straight, while respective upper side edges 16, 22 of the top and base layers are curve shaped, and respective first side edges 13, 19 and second side edges 14, 20 of the top and base layers are substantially straight, such as the bag section 30 of the survival bag in Figure 4.

In Figure 7, the bag section 30 of the survival bag is shown having a shape that is a combination of the bag sections 30 of the survival bags shown in Figures 5 and 6, i.e. a survival bag 10 wherein the survival bag has a width transvers to the longitudinal direction V of the survival bag that is tampered from the upper side edge towards the lower side edge, such as shown in both Figure 5 and Figure 6, and wherein respective upper side edges 16, 22 of the base and top layers are straight,
such as shown in Figure 5; respective lower side edges 15, 21 of the base and top layers are straight, such as shown in Figure 6, and respective first side edges 13, 19 and second side edges 14, 20 of the base and top layers are substantially straight, as shown in both Figures 5 and 6.

The top layer 12 is attached to the base layer 18 along the respective lower side edges 15, 21, and at least partly along the respective first side edges 13, 19, and at least partly along the respective second side edges 14, 20, either with a permanent connection, such as for instance gluing, welding, a seam, or other suitable attachment method, or, with a connection that can be opened and closed repeatedly, such as Velcro, push buttons, zipper, or other types of attachment means which can be opened and closed repeatedly. Respective first side edges 13, 19 of the top and base layers will normally be connected to each other in a permanent connection, e.g. by gluing, welding, a seam, or other suitable attachment methods as mentioned above. Respective lower side edges 15, 21 of the base and top layers may either be connected to each other by a permanent connection such as the first side edges, or with a connection that can be opened and closed repeatedly, for example Velcro, button devices, zipper, or other suitable attachment means. The respective second side edges 14, 20 of the base and top layers may also either be connected to each other in a permanent attachment such as the first side edges, or with a connection that can be opened and closed repeatedly, for example, with Velcro, button devices, zipper, or other suitable attachment means.

In Figures 3-10, different combinations of a permanent connection, and a connection which repeatedly can be opened and closed to connect the first side edges 13, 19, the lower side edges 15, 21, and the second side edges 14, 20, is shown.

In Figures 3-7, respective first side edges 13, 19 of the top and base layers, respective lower side edges 15, 21 of the top and base layers, and respective second side edges 14, 20 of the top and base layers are connected to each other in a permanent connection 24, e.g. by gluing, welding, sewing, or other suitable attachment methods. It should be emphasized that the respective second side edges 14, 20 of the top and base layers in all the Figures 3-7 may alternatively be attached to each other with a connection that can be opened and closed repeatedly, as shown in Figures 8 and 9. In addition, it is emphasized that the respective lower side edges 15, 21 of the top and base layers in all of Figures 3-7 may also be attached to each other with a connection that can be opened and closed repeatedly, such as shown in Figure 10.

In Figure 8 and 9, a survival bag with a bag section 30 in which respective first side edges 13, 19 of the base and top layers, and respective lower side edges 15, 21 of the base and top layers are attached to each other in a permanent connection, is shown; e.g. by gluing, welding, sewing or the like, as explained above. Respective
second side edges of the top and base layers are connected to each other using an attachment means 26, which can be opened and closed repeatedly. The attachment means 26 may be complementary Velcro elements, buttoning elements, zipper elements, or the like, which may be opened and closed in a repetitive way. Complementary attachments means 26 may be distributed along the respective second side edges 14, 20 with desired mutual distance, such as shown in Figure 8. This may for instance be complementary Velcro elements, or buttoning elements. The complementary attachment means 26 may also be arranged continuously along all of or part of the respective second side edges 14, 20, such as shown in Figure 9. This may for example be complementary Velcro elements, or zipper elements.

In Figure 10, there is shown a survival bag with a bag section 30, in which respective first side edges 13, 19 of the base and top layers are attached to each other in a permanent connection; for example by bluing, welding, sewing, or the like, as explained above. Respective second side edges of the top and base layers, and respective lower side edges 15, 21 of the top and base layers are attached to each other using an attachment means 26, which can be opened and closed repeatedly. The attachment means 26 may be complementary Velcro elements, buttoning elements, zipper elements, or the like, which may be opened and closed in a repeated way. Complementary attachment means 26 may be arranged continuously along part of, possibly all of, the respective side edges 14, 20, such as shown in Figure 10. This may for instance be complementary Velcro elements, or zipper elements. Alternatively, the complementary attachment means 26 may also be distributed along the respective second side edges 14, 20, and possibly also along the respective lower side edges 15, 21; with desired mutual distance as shown in Figure 8. This may for example be complementary Velcro elements, or buttoning elements.

In Figures 11 and 12, a simple prototype of a survival bag 10 according to the present invention is shown. The top layer 12 is connected to the base layer 18 with a permanent connection 24 in the form of a seam along the respective first side edges 13, 19, second side edges 14, 20, and lower side edges 15, 21 of the top and base layers. As mentioned above, however, the top layer and base layer may be attached to each other in different ways. Both the base layer 18 and the top layer 12 is made from a closed cellular foam material. As shown in Figure 11, the top layer 12 has a length H₂ that is longer than the length H₁ of the base layer. Consequently, a user may wrap his/her head in the extra length of the top layer, as shown in Figure 12, and close off leakage of cold air into the inner space of the survival bag through the opening 28 of the survival bag.

In Figures 13 and 14, two almost similar versions of a survival bag 10 comprising a bag section 30, is shown. The bag section 30 comprises a bag layer 36, which initially has a flat shape. Then, the bag layer 36 has a first side edge 38; a second side edge 39; a lower side edge 40 in the foot end of the bag section 30, and an
upper side edge 41 in the head end of the bag section 30. In the middle between the first side edge 38 and the second side edge 39, the bag layer 36 has a center line M which divides the bag layer 36 into two equally large parts, wherein one part constitutes the base layer 42 of the bag section 30, and the second part constitutes the top layer 43 of the bag section 30. The bag section 30 is formed by folding or bending the part of the bag layer 36, which constitutes the top layer 43, along the center line M, such that the top layer 43 is positioned above the base layer 42.

The lower side edge 40 has also been divided in two parts by the centerline M, and the two halves of the side edge 40 are also arranged on top of each other. The two halves of the side edge 40 can be attached permanently to each other as suggested with the permanent connection 24 in the figures. The permanent connection may for example be a welding connection; i.e. the top layer 43 and the base layer 42 is welded together; or it can be a glued connection, or another suitable permanent connection, as suggested above. Instead of the permanent connection 24, a connection that is openable and closeable repeatedly may be used. This is most suitable if the connection between the first side edge 38 and the second side edge 39 is also openable and closeable repeatedly. As already mentioned above, the openable and closeable connection may be one or more Velcro, button devices, or similar devices.

The second side edge 39 is above the first side edge 38, such as shown in the figures. In the embodiment in the figures, the first side edge 38 and the second side edge 39 are arranged with corresponding attachment means 26, which may be opened and closed repeatedly. As mentioned above, the attachment means 26 may be Velcro, button devices, or other suitable attachment means, which may be opened and closed repeatedly. The arrangement of the bag section 30 with attachment means 26 that can be opened and closed makes it easier to enter into and get out of the bag section 30 of the survival bag, however, there is also a risk that the bag section will get less insulating capacity, and that water may penetrate the bag section 30 during use.

Often, when the insulating capacity and the waterproof properties of the survival bag are important, which is often the case at during desired use of the survival bag, the first side edge 38 and the second side edge 39 of the bag section will be connected through a permanent attachment, such as a weld, or a glued attachment. The two parts of the dually separated lower side edge 40 will also be connected permanently, preferably similarly as the first and second side edges 38, 39. Consequently, a user have to enter the survival bag 10 through the opening in the head end of the bag section 30. If desired, this opening may be provided with attachment means 26 (not shown in the figures); such that it can be closed by a user after the user has entered into the bag section 30. This may be achieved by the bag section 30 being provided with corresponding attachment means 26, which may be opened and closed repeatedly along the upper side edge 41, which is also dually
separated similarly as the lower side edge 40. Again, these attachment means may be Velcro, or button devices 26, as shown in the figures, along the first and second side edges 38, 39, or other suitable devices that can close off the opening in the head end of the bag section 30.

In Figures 15 and 16, there is shown a prototype of a survival bag 10 which is constructed as explained for Figures 13 and 14 above. The bag section 30 of the survival bag is constructed as one piece, and is folded and bent along a centerline M in the longitudinal direction V of the bag section, as explained for the Figures 13-14. First side edge 38 and second side edge 39 are permanently connected to each other in a continuous permanent connection. In addition, the two halves of the lower side edge 40 of the bag section, which remain on top of each other after having folded the bag section 30 about the centerline M, are attached to each other with a continuous permanent connection, as shown in the figures. In this case, there is a simple opening 28 in the head end of the survival bag, which a user has to use to enter into or escape from the bag. The upper side edge 41 of the bag section which extends around the opening 28 may be arranged with an attachment (not shown in the figures) which may be opened or closed repeatedly, for example by using Velcro, buttons, or the like.

It should be stressed that in this application, the survival bag 10 is to be understood such that it comprises a bag section 30, and that the bag section 30 has a general bag shape correspondingly as a common sleeping bag. In addition to the bag section 30, the survival bag 10 may also comprise one or more attachment means 24, 26, which are arranged on the bag section(s) along one or both corresponding first and second side edges and/or lower side edges of the bag section. Also along the upper side edges in the head end, the bag section may be arranged with attachment means 26, which may be opened and closed repeatedly. Thus, if the survival bag 10 comprises attachment means 24, 26, they shall not be considered part of the bag section 30. This means that the bag section 30 and the attachment means 24, 26 shall be considered separate parts of the survival bag 10. The survival bag 10 will always comprise a bag section 30, however, it does not need to comprise attachment means 24, 26, for instance if corresponding side edges on the bag layer(s) (top layer base layer) are attached to each other using welding which melts the corresponding side edges together.

The invention has been described with reference to some non-limiting examples. A skilled artisan in the field would however understand that the invention, as it is explained above and shown in the figures, may be modified, and that adjustments may be performed within the scope of the invention which is defined in the patent claims.
CLAIMS

1. Survival bag (10) for one or more individuals, which survival bag comprises a bag section (30) having a bag shape, characterized in that the bag section (30) is made exclusively from closed cellular foam material.

2. Survival bag according to claim 1, characterized in that the bag section (30) comprises a bag layer (30) having a lower side edge (40) at the foot end of the survival bag (10), an upper side edge (41) at the head end of the survival bag (10), a first side edge (38), a second side edge (39) and a central line (37) positioned substantially in the middle between the first side edge (38) and the second side edge (39), which bag section (30) is formed by folding or bending the bag layer (30) along the central line (37) such that a base layer (42) and a top layer (43) are formed, and wherein the base layer (42) and the top layer (43) are permanently and/or repeatedly openable and closable attached to each other along first side edge (38) and second side edge (39) and/or lower side edge (40).

3. Sleeping bag according to claim 2, characterized in that the first side edge (38) and second side edge (39) are permanently attached to each other, and in that the lower side edge (40) on the base layer (42) and the lower side edge (40) on the top layer (43) are permanently attached to each other.

4. Sleeping bag according to claim 2, characterized in that the lower side edge (40) on the base layer (42) and lower side edge (40) on the top layer (43) are permanently attached to each other, and in that the first side edge (38) and second side edge (39) are repeatedly openable and closable attached to each other.

5. Sleeping bag according to claim 2, characterized in that the lower side edge (40) on the base layer (42) and the lower side edge (40) on the top layer (43) are repeatedly openable and closable attached to each other, and in that the first side edge (38) and the second side edge (39) are repeatedly openable and closeable attached to each other.

6. Survival bag according to one of claims 1-5, characterized in that the bag layer (30) comprises only one layer.
7. Survival bag according to one of claims 1-6, characterized in that the bag layer (30) comprises an upper surface (45) and a lower surface (46), of which at least one of the surfaces (45, 46) has a layer that is heat laminated into the bag layer (30).

8. Survival bag according to claim 1, characterized in that the survival bag comprises a base layer (18) having a lower side edge (21) at the foot end of the sleeping bag, an upper side edge (22) at the head end of the sleeping bag, a first side edge (19) and a second side edge (20), and a top layer (12) with a lower side edge (15) at a foot end of the sleeping bag, an upper side edge (16) at a head end of the sleeping bag, a first side edge (13) and a second side edge (14), wherein the top layer (12) and the base layer (18) are permanently and/or repeatedly openable and closable attached to each other along corresponding first side edges (13, 19), second side edges (14, 20).

9. Survival bag according to claim 8, characterized in that the base layer (18) and the top layer (12) are connected to each other in a permanent connection (24) along at least part of respective first side edges (13, 19) of the base layer and the top layer, in a permanent connection or a connection that can be opened and closed along respective lower side edges (15, 21) of the base layer and the top layer, and in a permanent connection or a connection that can be opened and closed along at least a part of respective second side edges (14, 20) of the base and top layers.

10. Survival bag according to claim 8 or 9, characterized in that the base layer (18) comprises only one layer, and in that the top layer (12) comprises only one layer.

11. Survival bag according to one of claims 8-10, characterized in that the base layer (18) and the top layer (12) comprise respective upper surfaces (45) and lower surfaces (46) of which at least one of the surfaces (45, 46) of both the base (18) and top layers (12) have a layer which is heat laminated into the base layer (18) and top layer (12), respectively.

12. Survival bag according to one of claims 8-11, characterized in that the top layer (12) and base layer (18) are permanently connected to each other at least partly along respective first side edges (13, 19) of the top layer and the base layer, at least along respective second side edges (14, 20) of the top layer and the base layer, and along respective lower side edges of the top layer and the base layer.
13. Survival bag according to one of claims 8-12, characterized in that the top layer (12) and base layer (13) are permanently connected to each other at least along respective lower side edges (15, 21) of the top and base layers, and at least partly along respective first side edges (13, 19) of the base and top layers.

14. Survival bag according to one of claims 8-11 and 13, characterized in that the second side edge (20) of the base layer and the second side edge (14) of the top layer comprise one or more complementary attachment means (26), which attachment means (26) are adapted for repeated closing and opening.

15. Survival bag according to one of claims 8-11, characterized in that the lower side edge (21) of the base layer and the lower side edge (15) of the top layer comprise one or more complementary attachment means (26), which attachment means (26) are adapted for repeated closing and opening.
A. CLASSIFICATION OF SUBJECT MATTER

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61G B65D A47G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Further documents are listed in the continuation of Box C.

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